

Novartis Fund 2025

Announcement: Funding Opportunity

Project list last updated October 24, 2024

Project Title: Cost-Effectiveness of SKY Breath Meditation for Socioeconomically Disadvantaged Schools

Faculty Mentor: Jagpreet Chhatwal (<https://www.mgh-ita.org/profile/jag-chhatwal>)

Goal and Scope: To assess the long-term cost-effectiveness of the SKY Schools program, integrating SKY breath meditation with social-emotional learning (SEL) curricula, in improving behavioral and emotional outcomes among students in socioeconomically disadvantaged schools.

Short Summary: This project aims to conduct a comprehensive long-term cost-effectiveness analysis of the SKY Schools program, which combines SKY breathing techniques with SEL curricula. The analysis will utilize a state-transition model to compare the costs and outcomes of implementing the SKY program versus schools without the program. The model will incorporate data from clinical trials and observational studies, focusing on behavioral and academic outcomes such as reductions in impulsivity and distractibility, and improvements in emotion regulation, self-esteem, and academic performance. The overall goal is to evaluate the return on investment (ROI) for schools and policymakers, emphasizing the long-term benefits of the program for students' well-being and academic success, particularly in disadvantaged areas.

Required Skills/Knowledge/Interest Area:

- Understanding of cost-effectiveness analysis and decision science
- Basic knowledge of modeling techniques (e.g., state-transition models)
- Interest in behavioral interventions and their impact on educational outcomes
- Familiarity with social-emotional learning (SEL) frameworks is beneficial but not required

Skills, Knowledge, Expertise the Student Will Gain:

- Practical experience in conducting cost-effectiveness analysis within the education and mental health domains
- Exposure to decision science topics, specifically developing state-transition models using clinical and observational data
- Application of decision science in public health policy and education

The student will gain hands-on experience in developing and applying decision-analytics models on mental health and education policy, an area which has not been studied well in decision science. They will deepen their understanding of cost-effectiveness analysis, gain experience in working with clinical/observational data, and build expertise in evaluating mental health and educational interventions. Additionally, they will contribute to meaningful research that supports policy decisions to improve student outcomes in disadvantaged communities.

Duration: Semester-long

Time Commitment: Low (10 hours per week)

Project Title: Review of Methodological Variation in Daly Estimation

Faculty Mentor: Nicolas Menzies (<https://www.hsph.harvard.edu/profile/nicolas-alan-menzies>)

Goal and Scope: Targeted systematic review describing the variation in approaches taken for estimating DALYs in published infectious disease literature, plus a simulation study demonstrating the implications of the different analytic approaches.

Short Summary: DALYs (disability-adjusted life years) are a commonly used metric of health burden in LMIC settings, and are frequently used to quantify the health benefits of interventions. Nevertheless, there is variation in how this metric is calculated across studies. I think this variation leads to meaningful differences in the magnitude of the resulting estimates. This project would dig into this issue, by first characterizing the range of methods used in the literature (would not aim to be exhaustive, but instead capture the most common approaches), and then doing simulation studies with a simple model to demonstrate whether the variation in approach matters.

Required Skills/Knowledge/Interest Area: Familiarity with R or other statistical software; basic quantitative ability.

Skills, Knowledge, Expertise the Student Will Gain: Understand methods variation within this field.

Duration: Either Semester-Long or Summer

Time Commitment: Low (10 hours per week) for semester, or low (15 per week) for summer

Project Title: Review of Methods for Meta-Analysis of CEAs

Faculty Mentor: Nicolas Menzies (<https://www.hsph.harvard.edu/profile/nicolas-alan-menzies>)

Goal and Scope: Systematic review of systematic reviews and meta-analyses of CEA results, plus methodological investigation to critique existing methods and propose better methods.

Short Summary: Though not that common, there are occasionally reviews of CEA evidence published, sometimes with quantitative synthesis / meta-analysis of some sort. This project would dig into this area to see what is done well, or don't badly, and (ideally), further refine the methods to adopt for this research approach.

Required Skills/Knowledge/Interest Area: Familiarity with basics of CEA and meta-analysis.

Skills, Knowledge, Expertise the Student Will Gain: Review and development of statistical methods for CEA.

Duration: Either Semester-Long or Summer

Time Commitment: Low (10 hours per week) for semester, or low (15 per week) for summer

Project Title: Representation in Alzheimer's Disease Clinical Trials

Faculty Mentor: Ankur Pandya (<https://www.hsph.harvard.edu/profile/ankur-pandya>)

Goal and Scope: This project is the starting point to estimate the value of increasing representation in Alzheimer's Disease-related clinical trials. The project will involve literature reviews and potentially simulation model development.

Short Summary: Alzheimer's Disease is a major public health issue, and its cost and health burdens will increase as the population ages. New treatments and diagnostic tests are emerging, but there is currently a limited evidence base for these technologies. Furthermore, the existing trials and studies for these technologies have very limited representation with respect to historical excluded populations. This project would search and summarize the literature on study representation in recent clinical studies related to Alzheimer's Disease, with an eye towards eventually (after the Novartis funding period) modeling the value of information from new clinical studies that use more representative study populations. If time permits, this funding period could also be used to design the Alzheimer's Disease simulation model that would be used for these value of information analyses.

Required Skills/Knowledge/Interest Area: Some familiarity with value of information analysis and Alzheimer's Disease treatments or diagnostics.

Skills, Knowledge, Expertise the Student Will Gain:

- Value of information methods
- Health disparities research
- Novel methods connecting those two concepts

Duration: Semester-long

Time Commitment: Low (10 hours per week)

Project Title: Streamlining Expert Elicitation

Faculty Mentor: Lisa A. Robinson (<https://www.hsph.harvard.edu/lisa-robinson>)

Goal and Scope: To review and synthesize the available research on how components of the structured expert elicitation process affect the validity of the resulting estimates.

Short Summary: Structured expert elicitation is a well-developed approach for reducing the effects of bias and simplifying heuristics when asking experts to estimate parameter values. However, it is too expensive and time consuming to be frequently used. This project will review and synthesize available research on the effects of components of the structured elicitation process on the validity of the resulting estimates. The findings will provide insights into the implications for less formal data collection from experts under tight time frames, and could potentially be used to develop guidelines for more streamlined applications. I expect, however, that more research will be needed to explore these implications. In that case this review can be used to design an experiment to explicitly test the effects of including or excluding specific components. This project builds on the results of our 2013 [research synthesis workshop](#) and the associated 2015 [Risk Analysis special issue](#), subsequent work for the U.S. Coast Guard, and the [Bojke et al. MDM \(2022\)](#) review of the use of structured elicitation in health care.

Required Skills/Knowledge/Interest Area: None, aside from interest in topic

Skills, Knowledge, Expertise the Student Will Gain:

- Familiarity with how biases and heuristics affect decisions and approaches for reducing their effects
- Understanding of the structured expert elicitation framework and its advantages and limitations

Duration: Semester-long

Time Commitment: High (15 hours per week)

Project Title: Systematic Review of Morbidity Valuation Studies

Faculty Mentor: Lisa A. Robinson (<https://www.hsph.harvard.edu/lisa-robinson>)

Goal and Scope: To develop a database of morbidity valuation studies conducted globally.

Short Summary: Many benefit-cost analyses ignore the contribution of averted nonfatal health risks to total benefits, in part because the unit values are believed to be small and in part because there is no easily accessible source of these values ([see, for example p. 12 of Robinson and Hammitt 2018](#)). However, the number of cases of illness or injury averted by many policies is very large; excluding the value of reducing nonfatal risks may significantly underestimate total benefits. A core challenge is the lack of an accessible, centralized database that allows researchers to easily locate estimates for specific health effects. This project will create a database of primary valuation studies that address nonfatal illnesses or injuries, building on initial work conducted this summer. Once the database is developed, it can be used for more sophisticated analyses, such as evaluating study quality and applicability to recommend best estimates, and conducting meta-analyses to explore sources of variation. It can also be used to identify research gaps and provide a foundation for future research. This topic was identified as a major Federal research priority in the 2023 White House report, [“Advancing the Frontiers of Benefit-Cost Analysis.”](#)

Required Skills/Knowledge/Interest Area: None, aside from interest in topic

Skills, Knowledge, Expertise the Student Will Gain:

- Familiarity with systematic review framework
- Familiarity with survey research
- Stated and revealed preference methods
- Understanding of best practices

Duration: Semester-long

Time Commitment: High (15 hours per week)

Project Title: Value of Information Algorithms for Amua

Faculty Mentor: Zachary Ward (<https://www.hsph.harvard.edu/profile/zachary-jonathan-ward>)

Goal and Scope: The goal of this project is to extend the value of information (VOI) features available in Amua, including expected value of partial perfect information (EVPPI) and expected value of sample information (EWSI).

Short Summary: Amua (<https://github.com/zward/Amua/wiki>) is an open-source modelling framework and probabilistic programming language for decision science teaching and research. This project will involve reviewing the current best-practice VOI algorithms (e.g., metamodeling approaches), and assisting with the development and testing of these features in Amua.

Required Skills/Knowledge/Interest Area: Familiarity with VOI approaches.

Skills, Knowledge, Expertise the Student Will Gain:

- Knowledge of VOI algorithms in detail
- Experience with software development and testing

Duration: Semester-long

Time Commitment: Low (10 hours per week)